April 2002 Vol. 1 Issue 3

Did You Know ?

O&C Bldg., Room 1103

Hours of Operation:

Monday - Friday
7:00 am - 5:00 pm

Phone 321-867-7497
Fax 321-867-1144

RehabWorks is a free on-site musculoskeletal rehab service for badged KSC and CCAFS employees with a work, non-work or sports-related injury. Prompt treatment for injuries. Checkout our Web page.

In Next Month's Issue

Youth Sports Injury Prevention & Treatment

Tips for parents and ideas for kids!

Web Links

American Diabetes Association
Before people develop type 2 diabetes, they almost always have "pre-diabetes"—blood glucose levels that are higher than normal but not yet high enough to be diagnosed as diabetes. Recent research has shown that some long-term damage to the body, especially the heart and circulatory system, may already be occurring during pre-diabetes. The links on this page are cornerstones of successful management of pre-diabetes.
http://www.diabetes.org/main/info/pre-diabetes.jsp

From The Supervisor

In this month's issue we focus on three chronic disease factors - diabetes, arthritis and asthma - and discuss how they affect our lives, as well as how exercise can positively reduce the effect of these diseases. I have pulled together some data from the Centers for Disease Control and Prevention in order for you to clearly see just how large of a problem this is for the U.S.

Diabetes is a serious, costly disease that is on the rise. Seventeen million Americans have diabetes, and over 200,000 people die each year of related complications. Diabetes can cause heart disease, stroke, blindness, kidney failure, leg and foot amputations, pregnancy complications, and deaths related to flu and pneumonia. Particularly at risk are the 5.9 million Americans who are unaware that they have the disease. Among U.S. adults, diagnosed diabetes increased 49% from 1990 to 2000. Similar increases are expected in the next decade and beyond. The direct and indirect costs of diabetes are nearly $100 billion a year. The average health care cost for a person with diabetes in 1997 was $10,071, compared with $2,699 for a person without diabetes. Better nutrition, physical activity, control of blood glucose levels, and access to services can delay the progression of diabetes. ***In fact, recent findings show that modest, consistent physical activity and a healthy diet can cut a person's risk for developing type 2 diabetes by nearly 60%.***

Arthritis and related conditions affect nearly 43 million Americans, or about one of every six people, making it one of the most prevalent diseases in the United States. By 2020, as the baby boom generation ages, an estimated 60 million Americans will be affected by arthritis. Arthritis is the leading cause of disability in the United States and although cost-effective interventions are available to reduce the burden of arthritis, they are currently underused. Besides the physical toll, arthritis costs the country nearly $65 billion annually. While people with arthritis are less active than the rest of the nation, there is evidence that behaviors such as weight reduction and avoiding injury may slow the progression and impact of osteoarthritis. ***Research also suggests that early diagnosis and appropriate management of arthritis (i.e., physical activity and maintaining an appropriate weight) can increase quality of life.***

Asthma affects over 15 million Americans, nearly 1/3 of which are children. In 1998, there were more than 5,438 deaths attributed to asthma, and 400,000 – 500,000 hospitalizations each year. 10 million days of school are missed each year, and the total cost due asthma in 1998 was estimated at $12.7 billion dollars. May 7th is World Asthma Day, where groups around the United States and the world host activities to raise awareness of the burden of asthma and to improve asthma care worldwide.

Although the numbers seem staggering, a little information goes a long way. Forewarned is forearmed, and my hope is that this issue of Athletic Training Times will give you the knowledge and ability to take the risk or existence of a disease into your own hands and reduce its effect on your quality of life. My special thanks go to Jennifer Weber for pulling together the majority of the articles in this issue. We also must extend a fond farewell to both Jennifer and Joe Santillo our athletic training interns for their outstanding assistance during the spring semester. Thank you both for a job well done and best of luck as you graduate and take your NATA certification exam!

Sincerely,

Mary K. Kirkland, MS, ATC/L, CSCS

Arthritis

Arthritis

By Jennifer Weber, RehabWorks Intern

Arthritis is defined as inflammation of a joint. There are many different conditions that fall into the category of joint inflammation, however there are a few conditions that are most commonly associated with arthritis that will be discussed. The three common forms of arthritis that you have probably heard are Osteoarthritis (OA), Rheumatoid Arthritis (RA), and Gout.

Osteoarthritis is the most common type of arthritis. It affects more than 21 million Americans. This type of arthritis is most often considered a disease of the elderly because it is due to excessive wear and tear on the joints that causes a break down in the cartilage in the joint, which can then lead to bone damage from bones rubbing on one another. Osteoarthritis is most commonly seen in the joints of the hips, knees, and fingers.

Rheumatoid Arthritis is different from Osteoarthritis because it affects the synovia of the joint. Synovia is the fluid that lubricates joints, bursae and tendon sheaths. The synovia becomes thick and contains inflammatory cells, which can damage the cartilage and bone of the joint. Although Rheumatoid Arthritis can affect anyone, women in their twenties and thirties are most commonly affected. This type of arthritis usually affects the hands, feet, or wrists, but over time can also affect other joints.

Another type of arthritis that is most commonly found in middle-aged men is Gout. It is most commonly found in the big toe. This type of arthritis involves needle-like crystals that get deposited in the joints causing extreme swelling and pain.

The treatments for arthritis will vary depending on the type and the severity of the condition. One common factor that will help with arthritis no matter what the cause is exercise. Exercise has been shown to increase range of motion and help to decrease pain related to arthritis. Exercise helps to strengthen the muscles surrounding the joints and will therefore decrease the amount of stress being put on that joint. In addition exercise along with a proper diet will promote weight loss and decrease that added stress on the joints of the knees and ankles.

Please see the links below for more information on arthritis, and be sure to contact RehabWorks (867-7497) or the Fitness Centers (867-7829) for more information on beginning an arthritis exercise program!

The Arthritis Society
http://www.arthritis.ca/

Exercise for Osteoarthritis
THE PHYSICIAN AND SPORTSMEDICINE - VOL 25 - NO. 7 - JULY 97
http://www.physsportsmed.com/issues/1997/07jul/dinub_pa.htm

Knee Arthritis in Active Individuals: Matching Treatment to the Diagnosis
THE PHYSICIAN AND SPORTSMEDICINE - VOL 26 - NO. 6 - JUNE 98
http://www.physsportsmed.com/issues/1998/06jun/harner.htm

Osteoarthritis: How to Make Exercise Part of Your Treatment Plan
THE PHYSICIAN AND SPORTSMEDICINE - VOL 25 - NO. 7 - JULY 97
http://www.physsportsmed.com/issues/1997/07jul/dinubile.htm

Asthma

Exercise for Asthma Patients: Little Risk, Big Rewards

The standard exercise recommendation—20 to 30 minutes at 60% to 85% of maximum heart rate four or five times a week—should be part of asthma management. Not only will patients benefit in a general way, but also improved fitness is likely to reduce airway reactivity and medication use. The capacity to exercise, however, requires good general control of asthma, including use of inhaled corticosteroids and avoidance of triggers. In addition, patients must be taught to prevent exercise-induced bronchoconstriction by using inhaled medications and strategies like avoiding cold-weather exercise.

Not so many years ago, to prescribe exercise for people with asthma would have been regarded as imprudent, if not irresponsible. Strenuous physical activity can trigger bronchospasm, cause an attack, and put the asthma patient at risk the reasoning went. Patients were routinely counseled to play it safe and avoid exertion. But the thinking about asthma and its management has changed dramatically in recent years. It is now universally recognized that chronic asthma, which affects 14 million to 15 million Americans (1), is fundamentally a disease of airway inflammation, and that with appropriate focus on that component, symptoms can be effectively controlled in nearly all cases.

How Exercise Helps

With the management modalities currently available, virtually all asthma sufferers not only can but also should exercise. They stand to reap the same benefits as others from regular physical activity through a reduced risk of cardiovascular disease, diabetes, and other health problems. In addition, some studies have found that exercise can improve the course of the disease itself. Reductions in airway responsiveness have been shown in patients who followed aerobic exercise programs. Some research also suggests that asthma sufferers who exercise regularly have fewer exacerbations, use less medication, and miss less time from school and work.

When they are physically fit and free from significant airway obstruction, people who have asthma respond to exercise very much like others, and their maximal heart rate, ventilation, blood pressure, and work capacity fall within the normal range. Sedentary asthma sufferers, on the other hand, produce more lactic acid (muscle activity by product) than unfit individuals without asthma who undertake similar physical exertion.

It is unfortunate, then, that asthma sufferers tend to be inactive and deconditioned. The reasons for this most likely have more to do with fear, misinformation, and inadequate management than with intrinsic limitations imposed by the disease. The substantial numbers of active children and adults, recreational athletes, and even elite athletes whose exertions are not deterred by their disease suggests that things could be otherwise. In the 1984 Olympics, for example, 26 of 597 athletes had a documented history of chronic asthma.

http://www.physsportsmed.com/issues/1998/06jun/disabell.htm

Asthma (cont'd)

Your Guide to Exercising With Asthma

Years ago, everyone thought strenuous physical activity was dangerous if you had asthma, but now we know better. Exercise is not only safe if done properly, it's an integral part of treatment. Regular workouts will make you stronger and more energetic and reduce your risk of heart disease, diabetes, and other health problems. What's more, your asthma is likely to improve. Studies have shown that physically fit people have fewer attacks, need less medication, and lose less time from work or school.

Controlling Symptoms

Chronic asthma control. To make sure asthma doesn't interfere with your ability to exercise, keep it under control. If your doctor has prescribed medications like inhaled corticosteroids for daily use, use them faithfully. Take the necessary steps to control allergies. Visit the doctor on a regular schedule, follow his or her instructions about monitoring your condition at home (using peak flow testing, for example), and be sure to report any problems promptly.

Exercise-induced asthma. Even if your asthma is well controlled, you may develop coughing, shortness of breath, chest pain, or nausea if you exercise without taking precautions. But several simple steps can prevent this exercise-induced asthma:

- Warm up with 10 minutes of stretching or light activity (like walking) before you work out more strenuously.
- Avoid exercising in cold, dry air. You'll probably have less trouble in the winter if you work out indoors. If you are active outside, cover your mouth and nose with a scarf or breathing mask to warm the air you breathe.
- If your doctor recommends it, prepare for exercise with two puffs of a beta-agonist inhaler 15 minutes before you exercise. This will keep your airways open and prevent symptoms.
- After exercise, cool down gradually with 10 to 15 minutes of lighter activity, like walking or stretching.

The Exercise Plan

Exercise specifics. For full benefit, try to exercise for 20 to 30 minutes, four or five times a week, strenuously enough to raise your heart rate to 60% to 85% of maximum. (Your maximum heart rate is roughly equal to 220 minus your age.) Choose an aerobic activity you find enjoyable; jogging, biking, and swimming are all good. If steady activities like these provoke symptoms despite precautions, substitute sports that involve short bursts of intense activity, like tennis, volleyball, or half-court basketball.

Take it easy. If you develop asthma symptoms during exercise, don't try to push your way through them. Stop what you're doing and take two more puffs from your beta-agonist inhaler. If this doesn't bring relief within 15 to 20 minutes, seek medical help.

For Trouble-Free Workouts

- Don't exercise on days when your symptoms are bothersome, such as when you're wheezing or coughing.
- Avoid areas where air pollution is high (like near a highway). On days when pollution is worse than normal or the pollen count is particularly high, exercise indoors or not at all.
- Vary your routine to keep things interesting. Go in-line skating one day, use an exercise bike another.
- Join with others. Exercise is more fun—and harder to skip—when it's a social event.

http://www.physsportsmed.com/issues/1998/06jun/dis_pa.htm

TABLE 1. Selected Web Sites on Asthma and Other Respiratory Diseases

National Asthma Education and Prevention Program: \n http://www.nhlbi.nih.gov/about/naepp/index.htm

American Lung Association: \n http://www.lungusa.org

American College of Allergy, Asthma, and Immunology: \n http://www.allergy.mcg.edu

Asthma and Allergy Foundation of America: \n http://www.aafa.org

Diabetes

Exercising Safely with Diabetes

Everyday more and more people are diagnosed with diabetes. Approximately 15.7 million people have diabetes and about 798,000 people are diagnosed with the disease per year. There are two primary types of diabetes, Type 1 and Type 2. Type 1, which is also known as insulin dependent diabetes, is usually diagnosed at an early age and is controlled primarily through the injection of insulin. Type 2 diabetes is most commonly diagnosed in adults and is treated with oral medications, diet, and exercise.

Regardless of the type of diabetes that one suffers from, research has shown that one of the most beneficial things that a diabetic can do is exercise. The benefits from exercise are numerous and include weight loss, decreased cardiac risk, improved glucose utilization, and enhanced socialization.

Although exercise is very beneficial for diabetics, it is important to understand that it has increased risks for an individual with diabetes. Because of these risks it is important for individuals with diabetes to know how to exercise safely.

Here are a few tips on how to benefit from exercise without putting yourself at risk:

- Get a good warm up and cool down
- Check your blood glucose before, after, and during your workout
- Exercise 1-2 hours after a meal
- Adjust insulin dosage as necessary
- Know the signs of hypoglycemia
- Eat extra carbohydrates for about 24 hours after intense exercise
- When weight lifting use light weight and increased reps
- If you have retinopathy (diseases of the retina) avoid activities that sharply raise blood pressure
- Choose proper foot wear

Diabetes (cont'd)

- Avoid exercise at times of peak insulin activity: Morning is ideal.
- Drink lots of fluids before, after, and during exercise
- Avoid alcohol around time of exercise
- Be aware of your own response to your blood glucose level

Additional precautions need to be made for individuals suffering from some of the side effects of diabetes. Individuals with autonomic dysfunction need to pay particular attention to their exercise response and alert a physician if they experience dizziness, weakness, or shortness of breath. These patients should also avoid exercising in extreme temperatures.

Another complication that individuals should be aware of is circulation complications to the extremities of the body. This complication can increase the possibility of injury to the feet. These individuals need to wear adequate footwear and should consider activities that are non-weight bearing such as rowing, biking, and swimming.
Retinopathy is another common complication that individuals with diabetes may suffer from. These individuals should avoid activities that could possibly lead to retinal detachment such as jogging, racket sports and heavy lifting.

As previously stated, hypoglycemia is a risk when exercising with diabetes. Due to some of the signs and symptoms of hypoglycemia activities such as rock climbing and scuba diving should also be avoided.

Exercise has its benefits for the diabetic community, as it does for all people. The important thing is to understand how to exercise safely yet effectively with diabetes. With these simple tips exercise can be fun, safe, and beneficial for an individual with diabetes.

For additional information regarding exercise and diabetes please refer to the following sources:

http://www.diabetes.org/main/

Exercise in Diabetes Management -Maximizing Benefits,Controlling Risks

THE PHYSICIAN AND SPORTSMEDICINE - VOL 4 - NO. 27 -APRIL 1999
http://www.physsportsmed.com/issues/1999/04_99/white.htm

Exercising With Diabetes
Tips, Strategies, and Precautions

THE PHYSICIAN AND SPORTSMEDICINE - VOL 4 - NO. 27 - APRIL 1999
http://www.physsportsmed.com/issues/1999/04_99/white_pa.htm

Ask The ATC

Glucosamine

Glucosamine has recently been touted as "The Arthritis Cure," and many news reports are calling it an effective treatment for osteoarthritis. In the lab, glucosamine stimulates cartilage cells to synthesize glycosaminoglycans and proteoglycans. In animal models, oral glucosamine sulfate has a beneficial effect on inflammation and mechanical arthritis.

Glucosamine Claims

- Protect cartilage against damage from weight-bearing exercise
- Slows cartilage breakdown
- Stimulates cartilage growth
- Cures arthritis

Research Shows

- Glucosamine plays a role in maintenance and repair of cartilage
- Glucosamine stimulates cartilage cells to synthe size cartilage building blocks
- Glucosamine may have an anti-inflammatory action by interfering with cartilage breakdown

Tips and Cautions

- Glucosamine is most effective for early arthritis when cartilage is still present
- Glucosamine is less effective for severe arthritis
- Glucosamine appears safe, however, more long-term research is needed to determine effectiveness

Glucosamine is a standard therapy in Europe, however, the U.S. suppliers are not regulated, so finding a trustworthy manufacturer can be difficult.

http://sportsmedicine.about.com/library/weekly/aa030901e.htm

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